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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Andy Ming Fen Tung

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EXAMINER

BOWERS, NATHAN ANDREW

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/756,740	Applicant(s) TUNG, ANDY MING FEN	
	Examiner NATHAN A. BOWERS	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,8,12,15-19,21,23-26,30,35,36,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 5, 6 and 8 is/are allowed.
- 6) ☒ Claim(s) 12,23,26,30,35,36,39 and 40 is/are rejected.
- 7) ☒ Claim(s) 15-19,21,24 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 April 2008 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were

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made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1) Claims 12, 26, 30, 35, 36, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo (US 5587320) in view of the English translations of Kitsui (JP11300324) and/or Kitsui (JP 2001120460) and further in view of Shimizu (EP 0599661).

With respect to claims 12 and 30, Shindo discloses a treatment apparatus comprising a reactor basin (Figure 9:150) capable of containing raw material and excrement. The basin is provided with at least two concave parts (Figure 10:521 and Figure 10:522) having curved bottoms. A temperature control means (Figure 9:153) in the form of a heating plate and thermostat are provided for maintaining the temperature within the reactor basin at a predetermined range. Column 11, lines 46-51 further state that an insulation layer is provided. At least two mixing devices (Figure 9:140 and Figure 9:145) are positioned within each of the concave parts. This is disclosed in column 13, line 44 to column 14, line 61. Shindo, however, does not expressly state that each shaft includes a helical blade stirrer provided on a plurality of spokes. Shindo does not indicate that the spokes are divided into two parts with helical directions that are reverse.

The Kitsui references disclose treatment apparatuses designed for processing excrement. Mixing devices are provided in the form of a rotation shaft comprising a helical blade stirrers supported by a plurality of spokes. Kitsui additionally indicates that mixing rings are provided for loosening and scraping. It is clear from the Figures that the helical blade stirrers are divided into two continuous and evenly spaced parts. The apparatus of Kitsui '460 clearly involves the use of a rotation shaft comprising spokes divided into two parts with helical directions that are reverse.

Shindo and Kitsui are analogous art because they are from the same field of endeavor regarding organic waste processing devices.

At the time of the invention, it would have been obvious to modify the mixing means of Shindo according to design set forth by Kitsui. Kitsui indicates that the use of a rotation shaft comprising multiple sets of helical blade stirrers are well known in the art and effective in the processing of organic wastes. It would have been apparent to use any known agitation blade configuration in the system of Shindo in order to enhance the treatment procedure.

Although the system of Shindo is used to treat organic wastes, Shindo does not expressly teach that the reactor basin at least partially forms the bottom treatment section of a bio-toilet. However, Kitsui states that it is known in the art to provide an organic waste reactor basin underneath a floor. Kitsui indicates that excrement is allowed to move through the floor via a conduit that has an outlet in communication with the reactor basin.

At the time of the invention, it would have been obvious to utilize the system of Shindo as a bio-toilet in such a way that the organic waste reactor basin is provided underneath a floor with a conduit in communication with the reactor inlet. The Kitsui references teach that this configuration is known in the art as a mechanism by which to immediately and effectively begin the degradation of excrement. In light of the teachings of Kitsui, one of ordinary skill in the art would recognize that the reactor of Shindo is fully capable of being positioned underneath the intermediary floor of a bio-toilet.

The combination of Shindo and Kitsui still differs from the claimed apparatus because they do not expressly indicate that the helical blade stirrers of the multiple mixing devices overlap partially.

Shimizu discloses a reactor basin (Figure 1:1) for containing raw material and excrement. The reactor basin includes at least two mixing devices (Figure 2:6) that comprise a rotation shaft and a plurality of mixing blades. This is described in column 3, line 21 to column 4, line 48. It is apparent from Figures 2, 3 and 11 that the mixing blades overlap in their movement.

Shindo, Kitsui and Shimizu are analogous art because they are from the same field of endeavor regarding organic waste treatment apparatuses.

At the time of the invention, it would have been obvious to alter the construction of the system of Shindo in order to ensure that the helical blade stirrers overlap in their movement. This would have aided mixing by guaranteeing that all organic materials located between the two rotation shafts are thoroughly agitated. Overlap in the mixing

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regions of the multiple mixing devices ensures that there is no dead area formation in the reactor.

With respect to claim 26, Shindo, Kitsui and Shimizu disclose the apparatus set forth in claim 19 as set forth in the 35 U.S.C. 103 rejections above. Furthermore, Shindo indicates in column 13, line 66 to column 14, line 5 that heating plates (Figure 9:153) are provided on the outer surface of the reaction basin. Column 11, lines 46-51 state that an insulation layer is provided.

With respect to claims 35 and 36, Shindo, Kitsui and Shimizu disclose the method in claim 30 wherein the mixing means is driven within a predetermined time interval. This is described in column 4, lines 4-21 and column 12, lines 46-64. Shindo states that the mixing devices is driven in forward and reverse directions so as to sufficiently stir the waste.

With respect to claim 39, Shindo, Kitsui and Shimizu disclose the method in claim 36 wherein the mixing devices are driven when the treatment apparatus comes into use. The mixing control mechanism of Shindo is fully capable of being programmed to initiate and terminate operation based on a sensed condition within the bio-toilet. It would have been obvious to one of ordinary skill in the art to use the Shindo method only when necessary - when someone enters the bio-toilet.

With respect to claim 40, Shindo, Kitsui and Shimizu disclose the method set forth in claim 39 as set forth in the 35 U.S.C. 103 rejections above, however do not expressly disclose that the mixing means is driven after the degradation process is completed. Regardless, it would have been obvious to continue rotation of the mixing means during cleaning procedures following the treatment of wastes. It would have been apparent to one of ordinary skill in the art that rotation of the mixing means would ensure that every surface of the agitation blades is exposed during cleaning.

2) Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo (US 5587320) in view of the English translations of Kitsui (JP11300324) and/or Kitsui (JP 2001120460) and Shimizu (EP 0599661) as applied to claim 12, and further in view of Kishi (US 5418982).

Shindo, Kitsui and Shimizu disclose the apparatus set forth in claim 12 as set forth in the 35 U.S.C. 103 rejections above. As previously noted above, Kishi teaches an arrangement in which excrement is moved through a top plate to a treatment area. Kishi, however, does not expressly describe that a conduit is used to guide urine to the excrement drop area.

Kishi discloses a raw sewage disposal apparatus comprising a urinary inlet (Figure 3:9) and an excrement drop inlet (Figure 3:6). A conduit (Figure 3:36 and Figure 3:69) is used to guide human urine to the place (Figure 3:26) where excrement is dropped.

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Shindo, Kitsui, Shimizu and Kishi are analogous art because they are from the same field of endeavor regarding waste treatment systems.

At the time of the invention, it would have been obvious to guide urine from the urinary inlet to the place where excrement drops in the apparatus of Shindo and Kitsui using a conduit provided at an underside of the top plate. Kishi teaches that this arrangement is beneficial because it allows one to consolidate all wastes at a desired treatment location.

Allowable Subject Matter

Claims 1, 5, 6 and 8 are allowed.

With respect to independent claim 1, the prior art does not disclose, in the claimed environment, an excrement treatment apparatus comprising a plurality of helical blade stirrers with each stirrer comprising pluvimixing rings carrying blocks for loosing degraded organic material. The Kitsui references represent the closest prior art. Each reference discloses the use of a treatment apparatus comprising helical blade stirrers divided into two parts with helical directions in a reverse orientation. However, Kitsui does not describe the use of pluvimixing rings comprising a plurality of blocks located on the outer sides of each helical blade stirrer. The stirring blades 12 disclosed by Kitsui are attached to a rotation shaft, but are not located on the outer sides of each helical blade stirrer and are not in the shape of rings.

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Claims 15-19, 21, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to dependent claim 15, the prior art does not disclose, in the claimed environment, an excrement treatment apparatus comprising a plurality of helical blade stirrers with each stirrer comprising pluvimixing rings carrying blocks for loosing degraded organic material. The Kitsui references represent the closest prior art. Each reference discloses the use of a treatment apparatus comprising helical blade stirrers divided into two parts with helical directions in a reverse orientation. However, Kitsui does not describe the use of pluvimixing rings comprising a plurality of blocks located on the outer sides of each helical blade stirrer. The stirring blades 12 disclosed by Kitsui are attached to a rotation shaft, but are not located on the outer sides of each helical blade stirrer and are not in the shape of rings.

With respect to dependent claim 24, the prior art does not disclose, in the claimed environment, the use of a conduit in a bio-toilet capable of guiding urine to a common excrement dropping area using a plurality of dispensing holes provided at the bottom of the conduit. The Kishi reference teaches that it is known to collect urine and solid wastes in a common location, however does not describe that urine is moved to this location using a conduit comprising a plurality of dispensing holes.

Response to Arguments

Applicant's arguments filed 09 April 2008 with respect to the 35 U.S.C. 103 rejections of claim 12 have been fully considered but they are not persuasive.

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Applicant's principle arguments are

(a) Shindo does not indicate that either sawdust or excrement is used in the apparatus.

In response, please consider the following remarks:

The claim limitation "for containing sawdust and excrement" describing the nature of the reactor basin represents an intended use that does not carry significant patentable weight when presented in an apparatus claim. Although Shindo does not expressly teach the treatment of sawdust and excrement, the Shindo apparatus is generally suited for the degradation of organic wastes, and is therefore fully capable of accommodating sawdust and excrement particles.

In response to applicant's argument that Shindo does not teach the treatment of sawdust and excrement, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regardless, the Kitsui references describe at length that it is known in the art to treat sawdust and excrement combinations using similar types of organic waste processing devices.

(b) Shimizu does not teach overlapping rotation of helical stirrers comprising continuous blades connecting individual pawls. If pawls were connected at the ends, Shimizu's strategy would no longer work.

In response, please consider the following remarks:

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It is within the purview of one of ordinary skill in art to recognize that the continuous blade regions of the helical stirrer disclosed by Kitsui might interfere with each other if allowed to overlap. One of ordinary skill in the art would know to time the rotation of each blade in order to ensure that overlapping regions do not jam together during rotary motion.

(c) The insulation layer of Shindo is connected to the auxiliary frame 35, not covering the heating plate as featured in Applicant's claims.

In response, please consider the following remarks:

It is agreed that the insulation layer of Shindo is positioned somewhere on the auxiliary frame of the treatment device. However, the heating plates 153 of Shindo are also positioned on the auxiliary frame. Although the insulation layer is not pictured in the Figures, it is likely that the insulation layer in fact does serve to cover the heating plate at least partially or indirectly since both elements are present in generally the same location (on the auxiliary frame).

(d) Shindo states that the arms are driven forward three sequences, stop, then backward for a predetermined period of time. This reference fails to reveal reversal after only one rotation.

In response, please consider the following remarks:

Shindo describes driving the mixing device forward three sequences before moving in reverse only as a suggested operation. Surely one of ordinary skill in the art would understand that this is not the only way to operate the apparatus of Shindo. The

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selection of a number of forward rotations represents a result effective variable optimized through routine experimentation that varies based on the consistency of the organic waste material being processed. One of ordinary skill in the art would continue mixing until as long as is deemed necessary. If this period of rotation consisted of a single sequence due to the nature of the medium being treated, then it would have been obvious to rotate for only a single sequence before reversing direction.

Applicant's arguments filed 09 April 2008 with respect to the 35 U.S.C. 103 rejections of claim 1 have been fully considered and are persuasive. These rejections have been withdrawn.

Applicant's arguments filed 09 April 2008, with respect to the 35 U.S.C. 103 rejections regarding the combination of Shindo, Kitsui, Shimizu and Hudgins have been fully considered and are persuasive. Therefore, these rejections have been withdrawn. However, upon further consideration, a new ground of rejection is made in view of the combination of Shindo, Kitsui, Shimizu and Kishi.

Conclusion

This is a non-final rejection.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Yount (US 4521304) reference teaches the state of the art regarding bio-toilets and excrement treating devices.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/
Primary Examiner, Art Unit 1797

/Nathan A Bowers/
Examiner, Art Unit 1797